

***Why Buy Quiet?***  
***Understanding the Need***

***Beth Cooper, PE INCE.Bd.Cert.***  
***NASA Glenn Research Center***

# Why create a low-noise workplace?

- ⚙️ Lower risk of noise-induced hearing loss
- ⚙️ Better speech intelligibility
  - ⚙️ Between employees, w/ or w/o hearing protection
  - ⚙️ Announcements from PA systems
  - ⚙️ When using radios
- ⚙️ Increased safety
  - ⚙️ Increased alarm audibility
  - ⚙️ Increased concentration
  - ⚙️ Reduced fatigue
- ⚙️ More productive, comfortable environment

# Why can't we just wear earplugs?

- ⌘ Hearing protection isn't worn consistently
- ⌘ HPD performance is difficult to quantify
  - ⌘ Far less than the package label (NRR)
  - ⌘ Highly dependent on individual fit
- ⌘ Sometimes, no HPD offers enough protection
- ⌘ Some employees will still incur hearing loss
- ⌘ Hearing protectors can hinder communication
- ⌘ **Engineered controls are legally required**
  - ⌘ **Designed-in quiet is an *engineering* strategy**

# Buy-quiet approach

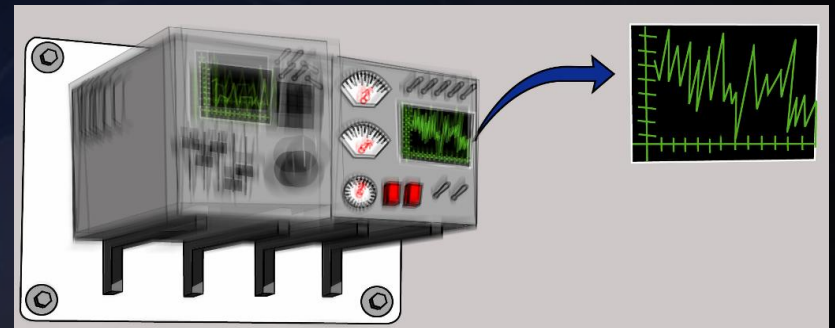
- Requestor specifies achievable noise *emission* limit that supports noise *exposure* limit
- Noise emission criterion (limit) language included in specification
  - Vendor assumes burden of meeting spec
  - Submittal data required prior to purchase
  - Shop verification before shipment
  - Field verification after installation
- Noise considered during “research” if no formal specification is issued

Why is it so important to  
**buy (design) quiet equipment**

instead of  
buying/designing a “loud” thing and  
then trying to make it quiet?

# 1. Low-noise designs usually reflect better engineering

- Noise is usually a waste byproduct
- Noise indicates an inefficient process
- Noise induces harmful vibration
  - Human exposure
  - Equipment damage
  - Data interference



## 2. Manufacturer-supplied controls always beat retrofit



because they work properly and are maintainable

### 3. It's bad economics



to buy more noise if you are (and you should be)  
investing in retrofit controls



## 4. Retrofit control is often impossible



if there are multiple, unique or expensive sources

# “Low-noise” is good in every respect

- ☰ Environmentally friendly
- ☰ Ergonomically superior
- ☰ Energy efficient
- ☰ Maintainable
- ☰ Sustainable
- ☰ “Green”

*Yes, but . . .*

# Won't it cost more to Buy Quiet?

- ☐ . . . maybe, but less than the long-term cost of a hearing conservation program
  - ☐ Noise exposure monitoring
  - ☐ Audiometric monitoring
  - ☐ Audiogram review and follow-up
  - ☐ Hearing conservation training
  - ☐ Personal hearing protective devices
  - ☐ Recordkeeping
  - ☐ Program management
  - ☐ **Required retrofit noise control solutions**

# Won't it cost more to Buy Quiet?

- ⚙️ . . . plus the costs of inevitable hearing loss
  - ⚙️ Hearing loss claims (Workers' Compensation cost)
  - ⚙️ Lifetime medical follow-up
  - ⚙️ Hearing aids and batteries
  
- ⚙️ **Quantifying these costs is essential for effective advocacy**

# Is “low-noise” equipment available?

- ☒ Most manufacturers can offer manufacturer-supplied controls for nominal product
- ☒ Demand increases supply (think IT and consumer product industries)



# Benefits of *structured* BQ process

- ≡ A public corporate stance sends a message
- ≡ Publicly visible programs create a precedent
- ≡ Some vendors won't quote low-noise products unless formally requested
- ≡ Formal specifications level the field
- ≡ **Voluntary product noise labeling is crucial!**